

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(s): Janne Parantainen CONF. NO. 9365
SERIAL NO.: 9/595,275 ART UNIT: 2611
FILING DATE: June 15, 2000 EXAMINER: Kevin Kim
TITLE: **METHOD AND ARRANGEMENT FOR CHOOSING A CHANNEL CODING AND INTERLEAVING SCHEME FOR CERTAIN TYPES OF PACKET DATA CONNECTIONS**
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Commissioner of Patents
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APPELLANTS BRIEF

(37 C.F.R. §1.192)

This is an appeal from the final rejection of the claims in the subject application contained in the office action mailed January 17, 2007. A Notice of Appeal was filed on July 16, 2007.

[1] REAL PARTY IN INTEREST

The real party in interest in this Appeal is the assignee, Nokia Corporation, Espoo, Finland.

[2] RELATED APPEAL AND INTERFERENCES

There are no related appeals or interferences.

[3] STATUS OF THE CLAIMS

Claims 1, and 4-6 stand rejected under 35USC102(e) on the basis of the cited reference Park et al, U.S. Patent No. 6,920,602. Claims 2 and 3 are indicated to contain allowable subject matter. The rejection is contained in the office action mailed January 17, 2007. Claims 1, and 4-6 are presented for consideration in this Appeal and are contained in the attached Claim Appendix.

[4] STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION

There were no amendments filed after Final Rejection.

[5] SUMMARY OF THE CLAIMED SUBJECT MATTER

As described in independent claim 1, the claimed subject matter relates to a method for choosing a channel coding and/or interleaving scheme during the negotiation of a connection between a mobile station and a base station. As shown in figures 2 and 3 and discussed in the specification at page 8, line 4, through page 9, line 23, a communication connection is requested over a radio interface between a mobile terminal and a base station at step 203. The request message includes a set of desired Quality of Service parameters selected, at steps 201 and 202, based on an expected use of the communication connection. The system allocates a channel coding and/or interleaving scheme for use in the requested communication connection based, at least in part, on said desired Quality of Service parameters at step 207, as the connection is established. As part of the allocation, the desired set of Quality of Service parameters are mapped to the allocated channel coding and/or interleaving scheme (see page 6, lines 31-38). The allocated channel coding and/or interleaving scheme is communicated to the base station and the mobile terminal for them to independently apply said first channel coding and/or interleaving scheme for use in the specific communication connection at steps 208 and 209.

As described in independent claim 6, in the apparatus of this application, the channel coding and/or interleaving schemes are chosen independently, for each new connection between mobile station 101 and base station 102, as the connection is set up. As shown in figures 1 and 4 and described on page 6, line 26 through page 7, line 17, the request for setting up of a connection is generated by the mobile terminal 101 and includes certain QoS parameters, selected by the mobile terminal, that the new connection should fulfil. The decision-making device 103 will take the requested QoS parameters and use them as a basis for selecting the appropriate, connection-specific channel coding and/or interleaving schemes. The channel coding and/or interleaving schemes is chosen independently for each new connection, as it is set up. The selection of QoS parameters by the terminal 101 is based on the expected use of the

connection and the decision-making device 103 will apply the requested QoS parameters as a basis for selecting the appropriate, channel coding and/or interleaving schemes for the specific connection. The channel coding and/or interleaving schemes are not applied to the network generically, but only to the individual connection being set up.

[6] GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

A. One issue presented for review is the propriety of the Examiner's rejection of claims 1, and 4-6, under 35USC102(e) on the basis of the cited reference Park et al, U.S. Patent No. 6,920,602. The rejection is contained in the Office Action mailed January 12, 2007.

[7] Argument

A. The cited reference Park fails to disclose each and every limitation of the claims of this application. It is well settled that a claim is anticipated, "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (See CHISOLM, Federal Circuit Guide, Pg. 1221). In particular claim 1 as amended states:

"said request message further indicating a certain set of desired Quality of Service parameters selected based on an expected use of said specific communication connection, to be associated with said requested specific communication connection,

allocating a channel coding and/or interleaving scheme for independent application to said specific communication connection based, at least in part, on said desired Quality of Service parameters;

communicating said allocated channel coding and/or interleaving scheme to the base station and the mobile terminal for them to independently apply said first channel coding and/or interleaving scheme for use in said specific communication connection."

The reference Park, et al fails to disclose these features.

The cited reference Park does not disclose the procedure of requesting certain QoS parameters and making an allocation decision about channel coding and interleaving on the basis of such information. Park assumes that both the transmitter and the receiver have previously stored look-up tables at their disposal, which look-up tables associate each set of possible QoS parameters with a frame length. The transmitter selects the frame length, according to the QoS parameters, and transmits what Park calls the "message information" to the receiver. This "message information" is actually a list of QoS parameters, and transmits what Park calls the "message information" to the receiver. This "message information" is actually a list of QoS parameters, on the basis of which the receiver knows to take the appropriate frame length into account in reception.

The applicant's system leaves the network with the freedom to consider factors, other than the mobile device's request, and take them into account in making such decisions. Park's mapping is fixed, so that if the transmitting device decides to use a certain QoS and consequently a certain frame length, the receiving device has no choice, other than to comply.

The reference Parks fails to disclose sending the QoS parameters in the request for connection. Although Parks calls for "message information" to be exchanged during a call setup phase, this is not the same as saying that it would be sent just in the initial request. The reference Parks fails to indicate that the QoS parameters, communicated during set up or any other time, would be used to determine anything related to channel coding or interleaving. Consulting a fixed entry in a look-up table is not the same. In the system of Park, the originator of a connection simply starts using the frame length that the QoS parameters dictate. Although the network can accept or reject a requested connection, it cannot determine the channel coding or interleaving scheme to be used based on the requested QoS, because it has already been selected by the originating device.

In summary Parks discloses:

that QoS parameters are sent from the initiating device as part of a connection process; it fails to disclose a "request message indicating a need for setting up a new radio bearer between the mobile terminal and the base station or changing the characteristics of an existing radio bearer between the mobile terminal and the base station";

that frame length is "appropriately varied according to the QoS of data to transmit"; it fails to disclose "allocating a channel coding and/or interleaving scheme for independent application to said specific communication connection based, at least in part, on said desired Quality of Service parameters";

that a particular frame length is selected on the basis of QoS; it fails to disclose "mapping said desired set of Quality of Service parameters to said allocated channel

coding and/or interleaving scheme as a part of the allocation of the channel coding and/or interleaving scheme; and

that QoS parameters are communicated from the initiating device to the responding device; it fails to disclose "communicating said allocated channel coding and/or interleaving scheme to the base station and the mobile terminal".

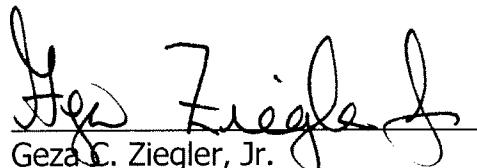
These distinguishing features are further illustrated for the convenience of the Board in the attached Evidence Appendix.

[8] SUMMARY

It is respectfully submitted that all of the claims, as presented, are clearly novel and patentable over the prior art of record. Accordingly, the Board of Appeals is respectfully requested to favorably consider the rejected claims and to reverse the final rejections, thereby enabling this application to issue as a U.S. Letters Patent.

The Commissioner is hereby authorized to charge payment of \$500 for the Appeal Brief and the one month extension of time (\$120) as well as for any other fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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18 September 2007

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted electronically, on the date indicated below, addressed to the Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: 9.19.2007

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Person Making Deposit

[09] CLAIM APPENDIX

1. (previously presented) A method for choosing a connection-specific channel coding and/or interleaving scheme comprising:

requesting a specific communication connection over a radio interface between a mobile terminal and a base station of a cellular packet radio system;

as part of said requesting a specific communication connection, communicating a request message, said request message indicating a need for setting up a new radio bearer between the mobile terminal and the base station or changing the characteristics of an existing radio bearer between the mobile terminal and the base station, said request message further indicating a certain set of desired Quality of Service parameters selected based on an expected use of said specific communication connection, to be associated with said requested specific communication connection,

allocating a channel coding and/or interleaving scheme for independent application to said specific communication connection based, at least in part, on said desired Quality of Service parameters;

mapping said desired set of Quality of Service parameters to said allocated channel coding and/or interleaving scheme as a part of the allocation of the channel coding and/or interleaving scheme; and

communicating said allocated channel coding and/or interleaving scheme to the base station and the mobile terminal for them to independently apply said first channel coding and/or interleaving scheme for use in said specific communication connection.

2. (allowed) A method for choosing a connection-specific channel coding and/or interleaving scheme to be applied in a communication connection over a radio interface between a terminal and a base station of a cellular packet radio system where a certain

decision-making device allocates channel coding and/or interleaving schemes to communication connections, comprising the steps of:

- communicating a request message to the decision-making device, said request message indicating a need for setting up a new radio bearer between the terminal and the base station or changing the characteristics of an existing radio bearer between the terminal and the base station and indicating a certain set of Quality of Service parameters associated with a certain first communication connection,
- mapping said set of Quality of Service parameters to a certain first channel coding and/or interleaving scheme as a part of the connection-specific channel coding and/or interleaving scheme allocation made by the decision-making device and
- communicating said first channel coding and/or interleaving scheme to the base station and the terminal for them to apply said first channel coding and/or interleaving scheme in said first communication connection;

wherein the step of communicating a request message to the decision-making device further comprises the mutually alternative substeps of:

a1) indicating, within said set of Quality of Service parameters, high service precedence, short mean delay and short maximum delay when the request message concerns a certain communication connection for transmitting real-time speech and/or real-time video image, or

a2) indicating, within said set of Quality of Service parameters, low service precedence, long mean delay and long maximum delay when the request message concerns a certain communication connection for transmitting non-real time data;

and

- the step of mapping said set of Quality of Service parameters to a certain first channel coding and/or interleaving scheme comprises the mutually alternative substeps of

- b1) mapping the set of Quality of Service parameters indicating high service precedence, short mean delay and short maximum delay into a channel coding scheme with no retransmissions and a long interleaving length, or
- b2) mapping the set of Quality of Service parameters indicating low service precedence, long mean delay and long maximum delay into a channel coding scheme with retransmissions and a short interleaving length.

3. (allowed) A method according to claim 2, wherein step b1) further comprises the feature of mapping said set of Quality of Service parameters indicating high service precedence, short mean delay and short maximum delay into a channel coding scheme which is optimized for speech.

4. (previously presented) A method according to claim 1, wherein the step of communicating a request message is executed as a response to an observed need for setting up a new radio bearer between the mobile terminal and the base station.

5. (previously presented) A method according to claim 1, wherein the step of communicating a request message is executed as a response to an observed need for changing the characteristics of an existing radio bearer between the mobile terminal and the base station.

6. (previously presented) Apparatus for choosing a channel coding and/or interleaving scheme comprising:

- a mobile terminal, a base station and a radio interface between them,
- a certain decision-making device for allocating channel coding and/or interleaving schemes to communication connections,

- wherein the mobile terminal is adapted to request a specific communication connection with said base station over said radio interface, said request for a specific communication connection further including a request message to the decision-making device, said request message indicating a need for setting up a new radio bearer between the mobile terminal and the base station or changing the characteristics of an existing radio bearer between the mobile terminal and the base station, said request message further indicating a certain set of desired Quality of Service parameters based on an expected use of said specific communication connection, to be associated with said requested specific communication connection;

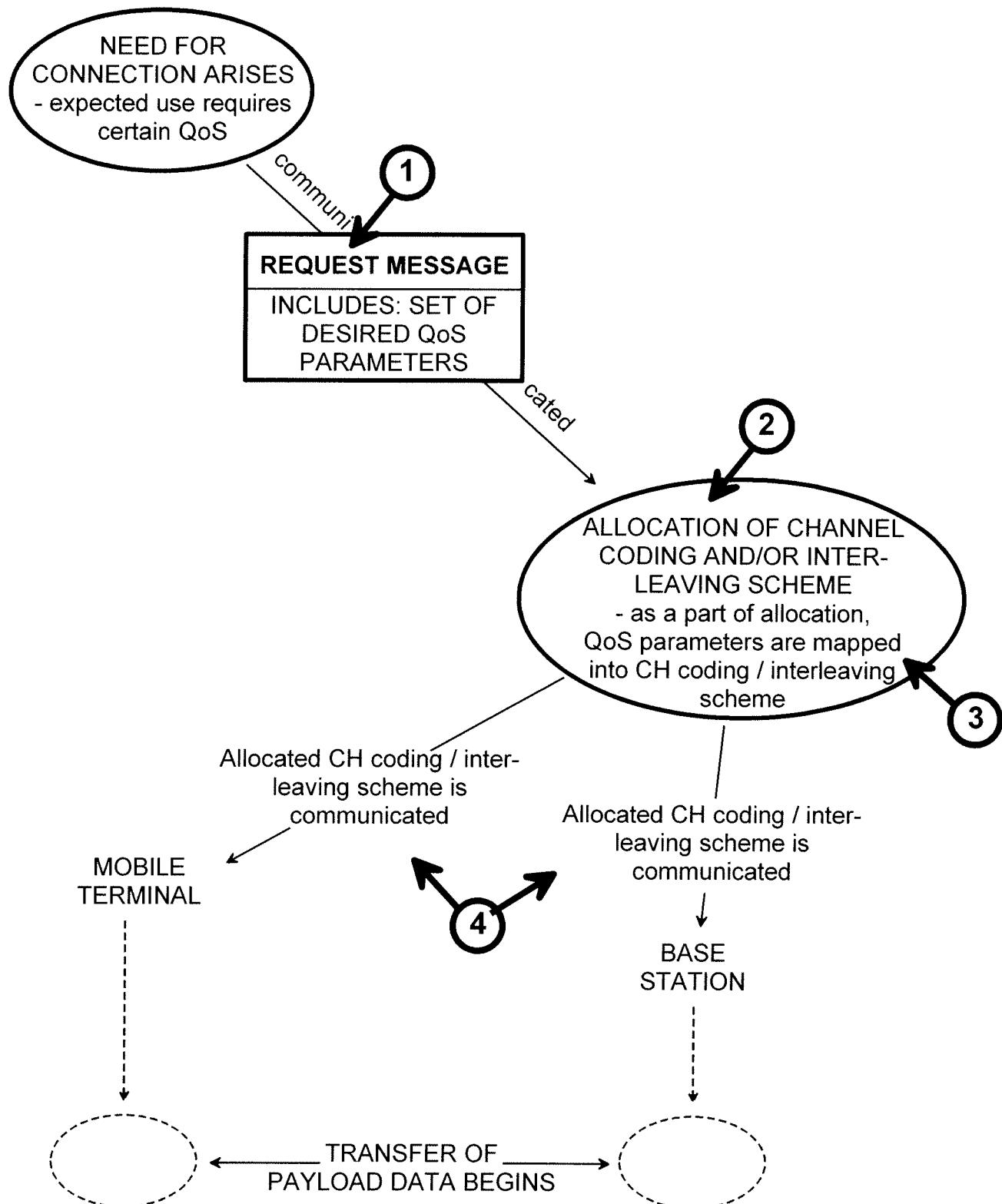
wherein the decision making device is adapted to allocate a channel coding and/or interleaving scheme for independent application to said requested specific communication connection based, at least in part, on said desired Quality of Service parameters, and is further adapted to map said desired Quality of Service parameters to said allocated channel coding and/or interleaving scheme as a part of the allocation of the channel coding and/or interleaving scheme; and

wherein said decision making device is adapted to communicate said allocated coding and/or interleaving scheme to the base station and the mobile terminal for them to independently apply said allocated channel coding and/or interleaving scheme for use in said specific communication connection.

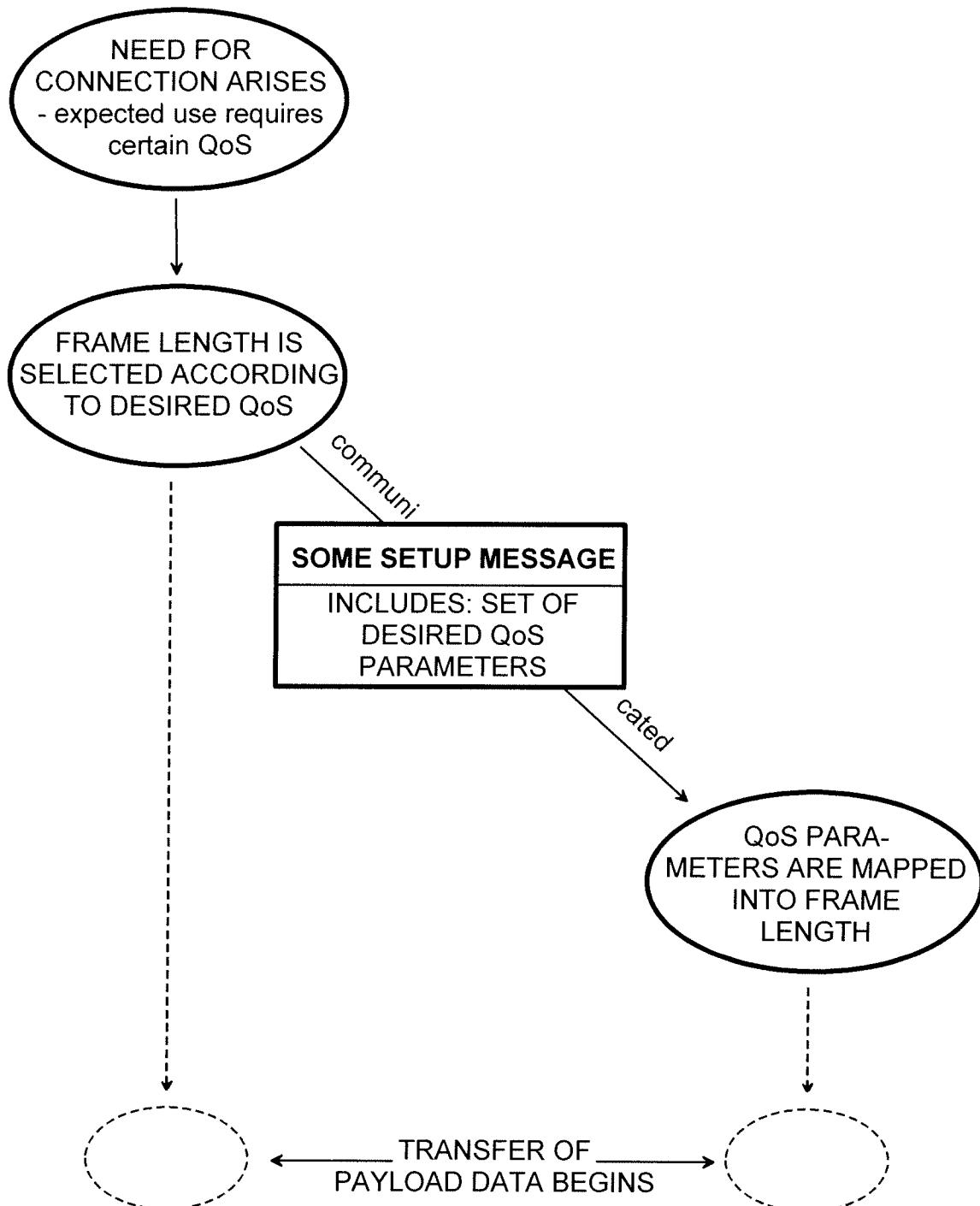
[10] EVIDENCE APPENDIX

See attached figures 1 and 2 in which figure 1 illustrates the system according to the claims of this application and in which figure 2 illustrates the system according to the cited reference Parks.

METHOD OF PENDING CLAIM 1



PARK'S METHOD



[11] RELATED PROCEEDINGS APPENDIX

N/A